

Assessing motor imagery ability in patients with Traumatic Brain Injury

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INTRODUCTION

Mental training through motor imagery (MI) is a neurorehabilitation technique that offers the possibility to mentally rehearse task-specific actions, independent of motor recovery. One important prerequisite is that MI ability is preserved. However, little is known about MI ability in patients after a traumatic brain injury (TBI).

OBJECTIVE

To assess MI ability in patients with TBI, using a combination of tests that have been validated in a healthy and/or neurologic population.

METHODS

Twenty-eight patients with TBI (174.54 ± 80.7 days post trauma) and 21 healthy controls (matched for age, gender and educational level) completed the following MI test battery: 1) timed-dependent motor imagery screening test (TDMI), 2) movement imagery questionnaire – second revised version (MIQ-RS), 3) temporal congruence test (TCT) and 4) mental rotation (MR) test. Differences between groups were assessed using a Mann-Whitney U test.

RESULTS AND DISCUSSION

When comparing the TBI group to the healthy controls no significant differences could be detected, except for the reaction time of the MR test ($p < 0.001$). This implies that MI ability is preserved in patients with TBI in our study cohort. The slower reaction time in the TBI group might be explained by the known correlation between response times and biomechanical constraints.

CONCLUSION

MI ability seems to be preserved in TBI patients, which implies these patients are eligible for MI training. However, during therapy sessions the slower reaction time should be taken into consideration.

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